

DESERT

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NOTES ON BOLIVIAN TEPHROCACTI

Curt Backeberg

A PLEA FOR SUCCULENTS

CRASSULA GRISEA

H. Herre

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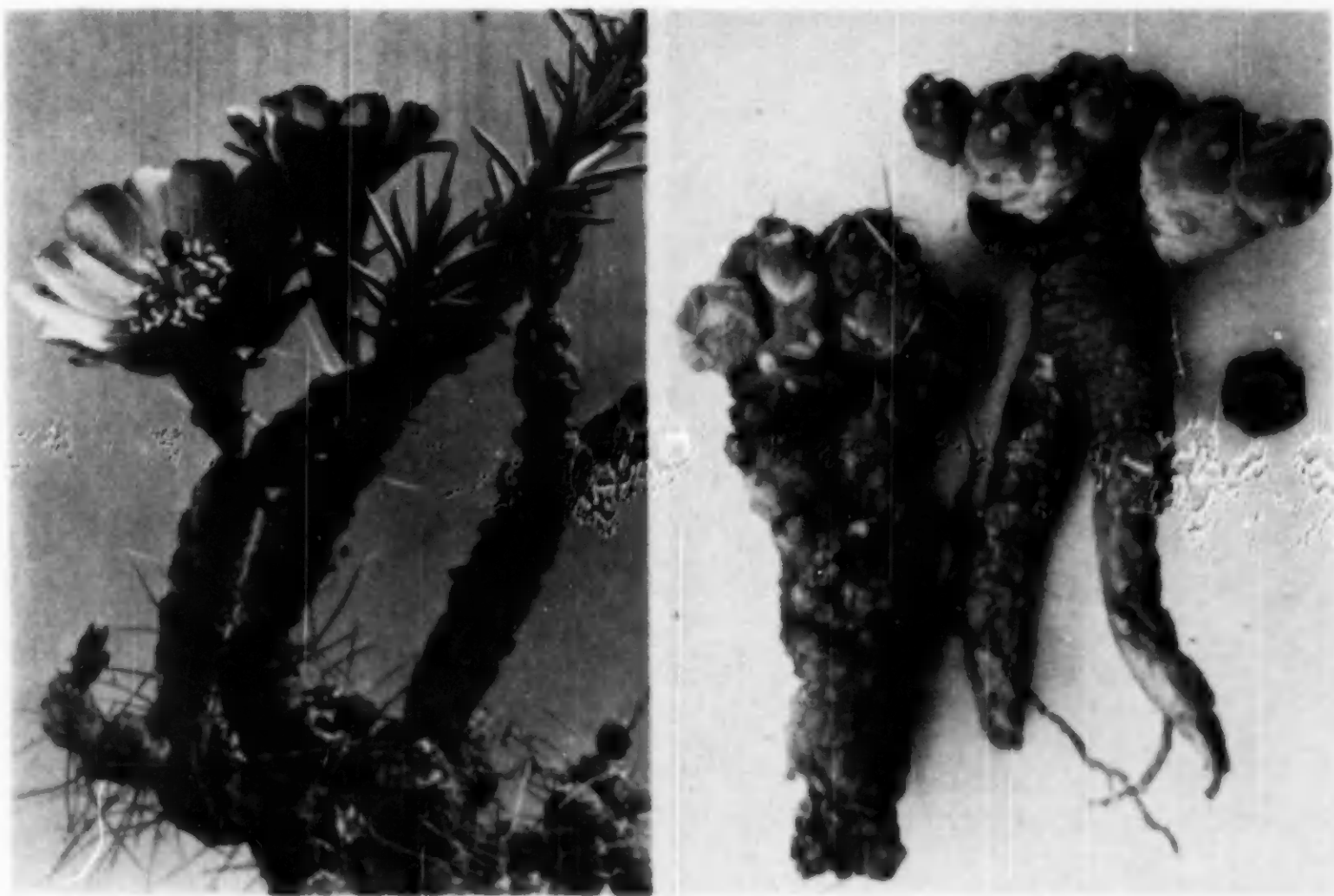
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DESERT PLANT LIFE

Notes on Bolivian Tephrocacti

There are two groups of globular *Opuntioideae* in the Bolivian highlands: (1) *Tephrocactus* of constant form and (2) *Austrocyllindropuntia* *teres*, *verschaffeltii* and *vestita* of inconstant form. In my synopsis they fall in the subnationes *Austrosphaeropuntiae* and *Austrocyllindropuntiae*. The *Austrocyllindropuntiae* include South American forms without sheaths on the spines observed. *Cylindropuntia* is a northern group with sheaths.

Austrocyllindropuntia verschaffeltii of Northern Bolivia is shown in flower (Fig. 1). In the photo both forms are visible, the globular and the cylindrical. *Austrocyllindropuntia vestita* grows in the same way. This species has two forms: (1) the type, with rather short leaves and (2) var. *major* Backbg. with rather long leaves. In their habitat *Austrocyllindropuntia* *teres*, *verschaffeltii* and *vestita* have globular forms; when brought into the lowland they become cylindrical, showing that they belong to the *Austrocyllindropuntiae*.



1: AUSTROCYLLINDROPUNTIA VERSCHAFFELTII (CELS) BACKBG.

2: TEPHROCACTUS PENDLANDII (S.-D.) BACKBG.



3: *TEPHROCACTUS BOLIVIANUS* (S.D.) BACKBG.

4: *TEPHROCACTUS SUBINERMIS* BACKBG.

5: *TEPHROCACTUS FLEXUOSUS* BACKBG.

On the other hand species of *Tephrocactus* never lose their globular form when cultivated in the lowland. Apparently their seeds don't germinate in the lowland. Do they require frost for germinating, being genuine highland-inhabitants?

Rose's Series *Vestitae* imitate the growth form of *Tephrocactus* perhaps because of the great altitude where they grow, in the reduction of their cylindrical form. Maybe they are recent immigrants and therefore their globular forms are not constant?

In "The Cactaceae" 1:71 Britton and Rose said that *Opuntia teres* and *Opuntia vestita* were identical. I have seen both. *Austrocyllindropuntia teres* of the neighborhood of La Paz is little hairy and has nothing to do with the low-growing *Austrocyllindropuntia vestita* with its white globular joints.

Species of *Tephrocactus* mostly don't show longer leaves, i.e. those of globular growth and of the transitional group between cylindrical and



globular types Series 1: *Elongati* the Subseries *Strobiliformes*. The Subseries *Floccosi* and *Weberiana* have a little longer leaves.

Opuntia pentlandii Salm-Dyck (*Tephrocactus pentlandii* (S.-D.) Backbg.) was called by Britton and Rose "the most characteristic plants of the high pampas of the Andean region, mostly growing at elevations of 12,000 feet or higher, forming low, broad, compact clumps, sometimes made up of a hundred plants [*i.e. joints*] or more" . . . But obviously Britton and Rose were mistaken. What is the true "*Opuntia pentlandii* S.-D.?" and why did they combine *O. boliviana* S.-D. with it? Both species were described by Salm-Dyck. How, then, can they be identical as Rose supposed?

Salm-Dyck's original description in "Cacteae in Horto Dyckensi Cultae" says of *O. pentlandii*: "Aculeis 4-6 gracilibus rigidiusculis albidis [!] divaricatis deflexis [!]", and: "Aculeis graciles, subsetacei [!!], lin 3-4 longi [6-8 mm!!] . . . caulis humilis [!] . . . articulis . . . plano tuberculatis [!] . . . tomento gilvo in parte supra pulvilli."

This means that *Opuntia pentlandii* is *not* the plant described by Britton and Rose under this name! But all characters agree with the plant shown in Fig. 2. This was rediscovered by Mrs. Wilke whom I have known for 17 years as a keen observer of the Bolivian cacti. It grows on the Pampa Mochara near Tupiza, nearly hidden in the soil, and the red flowers appear almost from the ground. In the photo can be seen a thin-skinned fruit, which obviously had red flesh. This is one of the dwarfish *Tephrocacti*, "caulis humilis", as Salm-Dyck said, with small, flat tubercles, with a little yellowish felt in the areoles, the spines deflexed and slender, just of the size given in Salm-Dyck's description. Some of the spines are at first yellowish, others white. I counted up to six.

With the rediscovery of the true *Tephrocactus pentlandii*, the "most characteristic plant of the high pampas" becomes *Tephrocactus bolivianus* (S.-D.) Backbg. This plant is shown in Fig. 3. It was collected by Mrs. Wilke at Tres Paltos, where she saw pale yellow flowers. Rose says that the flower-color varies to deep red. Also the color and number of spines are very variable. I counted as many as 20; some are at times very short and bristly, others to 7 cm long, strong and pungent, spreading in all directions and also erect. Joints are from bright green to olive-green, spine-color from yellowish white to brown and horn-colored. The tubercles are rather large, the joints ovoid. The length of the spines is 3-4 "pollicares" (*i.e.* about 6-8 cm). This the most important characteristic agrees with the description of *Opuntia boliviana* S.-D.

Most probably Salm-Dyck gave the name "*Opuntia boliviana*" to characterize it as the typical Bolivian species of this group.

Also of this relationship is *Tephrocactus subinermis* Backbg. (Fig. 4), which I found on the high pampas of Northern Bolivia. Dr. Cardenas, another keen observer of the Bolivian cactus-flora, recently sent me a photo of a plant found near Oruro, *Opuntia* (*Tephrocactus*) *poznanskyana* Card. The joints are a little longish (as in *Tephrocactus subinermis*), with curved, weak spines, nearly bristly, close to the joints. Dr. Cardenas also sent a photo of another *Tephrocactus* nearly hidden in the soil, growing near Atocha (Potosi) at 4000 m (same as *Tephroc. pentlandii*). It is a compact mass of longish joints with black spines at the top. I don't know yet what name the discoverer has given to this species.

Of the genus *Tephrocactus* and the *Pentlandii*-group there are still other species in Bolivia: *Tephrocactus wilkeanus* Backbg., with few white bristly spines; *Tephrocactus rarissimus* Backbg., often with bluish-purplish joints; and the strange *Tephroc. flexuosus* Backbg. (Fig. 5).

Hitherto most cactus-botanists have given little attention to the genus *Tephrocactus*; many do not even accept this genus. But the future will show that it is one of the most typical of the Andean Highlands.

A PLEA FOR SUCCULENTS

We still hear from many gardeners who abhor succulents. On questioning, we find most of them think all succulents are horrid spiny plants, and the others apparently have an inherited prejudice against them.

We admit that an all-succulent-garden or a cactus collection is pretty hard for a gardener to assimilate who is accustomed to lawn paths, and box hedges, Peonies, Lilacs and Mock Orange. Nevertheless we feel that succulents can be mixed in with other plants and make as friendly a picture as it is possible to create. Kleinia under Olive trees, Aloes and Heather, Cotyledons in a wall are superb. Judged as line and color compositions they are the equal of any plant combinations. Judged by those who have a sentimental attachment for Azaleas, Rhododendron, Laurel and the woodsy plants of a temperate climate they are anathema. Judged by suitability to our climate and soil conditions they are perfect.

Critics of succulents say they are unnatural. Those who live in Santa Barbara need only drive up to the Blaksley Botanic Garden and look at the bank on the east side of the creek just below the dam to see masses of Dudleya growing wild. Travelers to Ensenada in Lower California will see acres of succulents combined with many different shrubs, herbs and flowers growing on mesas and mountains. Few there are who come back from such a trip without a desire to grow at least one of the beautiful silver-grey Dudleyas which make such fascinating rosettes on the rock cliffs beside the highway.

Rock gardeners are conditioned to succulents and use them. The famous English rock gardens all feature specimens of Sempervivums and Sedums and usually include other species that are hardy.

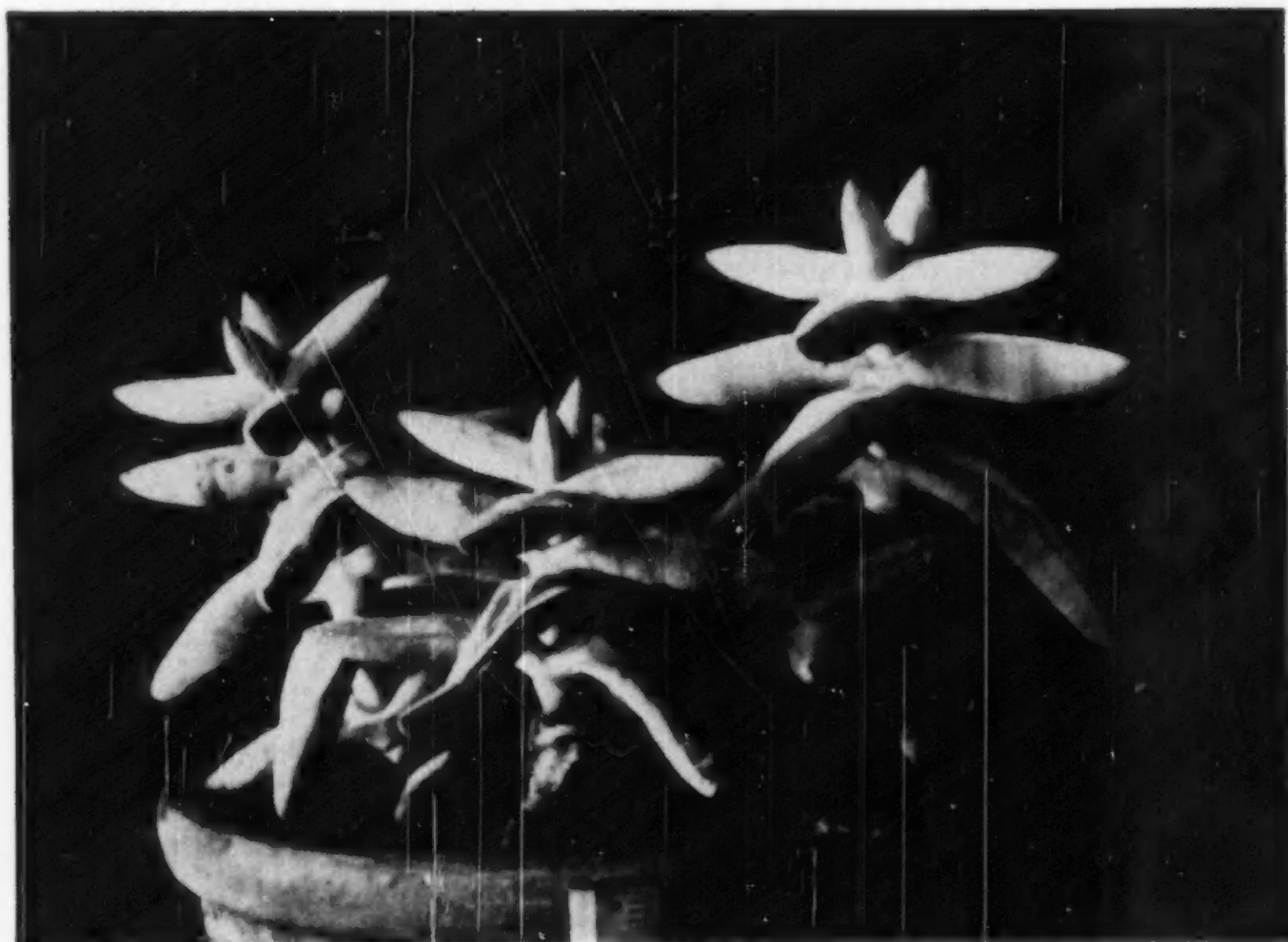
We believe it is the masses of Ice Plant along the highways, on the one hand, that has made the public consider succulents common and, on the other, the collections where the individual plants are framed in crushed rock, each specimen having little or no relation to its neighbor, that have prevented gardeners from appreciating their beauty.

We urge all gardeners to visit those growers who specialize in succulents and see the newer introductions and try to visualize them as additions to their own gardens. It should help them to cut upkeep costs while increasing beauty.

Santa Barbara Gardener

H. HERRE
Stellenbosch
South Africa

CRASSULA GRISEA Schönl



Photograph, AUTHOR, in Botanic Garden, 1947

This fine species was first described by Dr. S. Schönland in the Ann. S. Afr. Museum, IX (1912) p. 50. It grows on various places in the Richtersveld. It is a near relative of *Cr. hottentotta*, *C. decepatrix*, *C. arta* etc. but is easily to be distinguished from all of them by its long, narrow leaves which are much longer than broad.

In course of time the plant forms clumps with several stems which are up to 10 cm high. It forms the largest leaves at the base, while the leaves higher up develop small branches out of their axils. The leaves are opposite, decussate, about 4 cm long, 1 cm broad and 6-8 cm thick, oblong to oblong-lanceolate and covered with numerous fine papillae, so that it has a greenish-grey colour which accordingly has given it the well-chosen specific name. The leaves are sometimes a red margin and are more or less obtuse. The slender pecuncle appearing in the axils of the higher leaves bears sub-corymbose or subcapitate cymes. The small flowers have white petals. The stamens and carpels are much smaller than the petals. Stigmata sessile or subsessile, terminal; squamulae conspicuous.

Crassula grisea likes sun and warmth and never wants too much water. It grows easily and forms fine clumps which are looked at with pride by the grower and lover of this little jewel that gives us so much pleasure and satisfaction when it does fine!

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